ENVIRONMENTAL
Fact Sheet

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

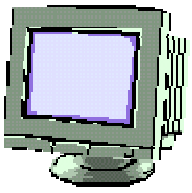
29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3503 • www.des.nh.gov

WMD-HW-25 2007

Proper Management of Cathode Ray Tubes from Computer Monitors and Televisions

What is a Cathode Ray Tube?

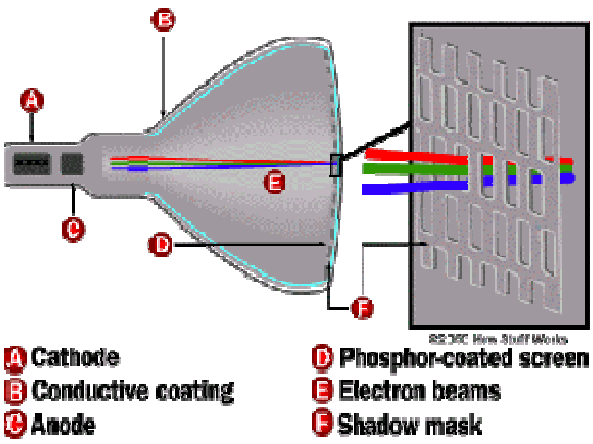
A cathode ray tube (CRT) is the video display unit found in televisions and computer monitors. A picture is created when a stream of electrons travels through a tube and lights up a phosphor coating on the glass face. There are two waste management issues associated with CRTs: the impact on the environment/health issues attributed to high amounts of lead and glass under pressure, and society's ability to deal with a growing number of discarded items. For these reasons, it is important to properly manage CRTs and then send them to appropriate locations for recycling or reuse.



How are CRTs regulated?

CRTs may not be disposed of in landfills or in incinerators in New Hampshire. Households and business entities must send their CRTs to a recycler or to a manufacturer's take-back program. There are also several donation programs that will take working CRTs. A CRT generated by a business, or separated from the disposal waste stream falls within the state's Universal Waste Rule, which became effective on October 13, 2001 (Env-Wm 1101-1114 of the New Hampshire Hazardous Waste Rules). The Universal Waste Rule sets management standards for commonly generated items based upon their relative risk and includes common consumer items such as fluorescent lamps, thermometers, thermostats and antifreeze. The Universal Waste Rule streamlines the more stringent hazardous waste regulations that would otherwise apply to a waste CRT.

The Growing Waste Stream



According to the U.S. Environmental Protection Agency, monitors make up 11 percent of the electronics waste stream. In a 1995 study, it is also estimated that CRTs contribute 28 percent of the lead found in the entire municipal waste stream, a figure that is expected to jump to 30 percent when numbers for 2000 become available. In the next ten years, it is estimated that 315 million computers will inundate the national waste infrastructure, with about 1.5 million units impacting New Hampshire. Approximately 95 percent of discarded computers end up in the solid waste stream,

headed for disposal or treatment in landfills and incinerators. Additionally, the television industry is bracing for a change to digital broadcasts, scheduled to happen in 2009, which means most existing televisions will need to be replaced or upgraded.

Health and Environmental Concerns
Computer monitors and televisions are heavy and extremely bulky, and a typical monitor can weigh as much as 35-70 pounds, occupying significant storage space. In fact, the very bulk of these items has created problems for handlers in terms of back strain and injuries due to dropping. Also, the CRTs in monitors and televisions contain lead in the tube, neck and the enclosed glass seal ("frit"). According to a recent study, the funnel alone can contain as much as 75 ppm of leachable lead as determined through a toxicity characteristic leaching procedure. A typical 27" television can have up to 8 pounds of lead.

Requirements for Households
Households must either recycle or donate their CRTs or participate in take-back program. Many municipalities have established fee-based recycling programs. If the community has a "swap shop," there is the greater likelihood of reuse of the entire unit or parts by local repair shops and other consumers. Consumers should check with their local facility for specific acceptance requirements.

Finally, there are several "take-back" programs, where manufacturers (e.g., Dell, Apple and Hewlett Packard) or retail establishments will accept monitors and televisions, either free-of-charge or for a fee, ranging from $7 to $30. Contact the New Hampshire Department of Environmental Services at (603) 271-3713 or http://www.des.nh.gov/SWTAS for specific vendors.

The Informed Consumer
When upgrading your computer, consider keeping your old monitor. Since most monitors made within the last five years are compatible with today's computers, you can save a significant amount of money by using your current unit.

Requirements for Businesses (Universal Waste Handlers)
CRTs from a business are considered a universal waste once they are no longer usable or repairable. Thus, the CRT will either need to be recycled or donated (working), or sent to a hazardous waste disposal facility. For vendor information and specific rules for universal waste (Env-Wm 1101-1114), contact the DES at (603) 271-3713 or http://www.des.nh.gov/SWTAS.

CRTs should be stored in a manner that does not pose a hazard to health or the environment. Unless the universal waste handler meets the requirements of Env-Wm 1113.03 of the Hazardous Waste Rules, CRTs must not be broken. Those CRTs that are broken should be stored in non-leaking containers. Each CRT must be labeled with the words "Waste Cathode Ray Tube," "Used Cathode Ray Tube(s)," or "Universal Waste - Cathode Ray Tube(s)."

Requirements for Facilities that Process Electronic Wastes
If electronic equipment wastes (including CRTs) are collected from households or businesses, a solid waste permit may be needed. If the activity is simply repairing and reselling or donating electronic equipment, then no permit is necessary. If there is actual dismantling of the electronic equipment for recycling or disposal, a solid waste facility permit is required. Contact the DES Solid Waste Bureau at (603) 271-2925 for permit information.